

## CLAIMS

5 1. A method for a decision service returning a real-time decision in ASP mode to an end user, said method comprising:

linking to a first computer system having project design software via the Internet or a virtual private network for designing rules, models, and/or strategies;

10 passing control to a code generator server for generating code for use in production in said ASP environment;

said code generator server generating strategy service software for installation on a decision server for executing said rules, models, and/or strategies;

15 sending input data to said decision server via a Web server, said input data for processing using said decision server;

said decision server processing said input data according to said installed rules, models, and/or strategies and creating corresponding output data;

20 said decision server returning said created output data to said Web server in XML format; and

said Web server returning said output data.

2. The method of Claim 1, further comprising:

25 using system integration and consulting services, said consulting services for developing and refining rules, models, and strategies.

3. The method of Claim 1, wherein said generated code is in C.

4. The method of Claim 1, wherein said decision server is linked to  
5 external data resources for extracting additional relevant data.

5. The method of Claim 1, wherein said input data is in XML format and  
wherein an ASP file running on said Web server passes said data to said  
decision server.

10 6. The method of Claim 1, further comprising:  
said code generator server generating an XML schema for providing to  
a client system for collecting said input data ; and  
said code generator server generating an XML parser/builder for  
15 reading data conforming to said XML schema.

7. The method of Claim 6, further comprising:  
providing a copy of said XML schema to said Web server for using in  
any of error handling, data validation, and data verification.

20 8. The method of Claim 1, further comprising:  
said code generator server generating a Web page for installing on  
said Web server to facilitate communication in ASP mode between a client  
system and said decision server.

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9. An apparatus for a decision service returning a real-time decision in ASP mode to an end user, said apparatus comprising:

means for linking to a first computer system having project design software via the Internet or a virtual private network for designing rules, models, and/or strategies;

means for passing control to a code generator server for generating code for use in production in said ASP environment;

means for said code generator server generating strategy service software for installation on a decision server for executing said rules, models, and/or strategies;

means for sending input data to said decision server via a Web server, said input data for processing using said decision server;

means for said decision server processing said input data according to said installed rules, models, and/or strategies and means for creating corresponding output data;

means for said decision server returning said created output data to said Web server in XML format; and

means for said Web server returning said output data.

10. The apparatus of Claim 9, further comprising:

means for using system integration and consulting services, said consulting services for developing and refining rules, models, and strategies.

11. The apparatus of Claim 9, wherein said generated code is in C.

12. The apparatus of Claim 9, wherein said decision server is linked to external data resources for extracting additional relevant data.

13. The apparatus of Claim 9, wherein said input data is in XML format and wherein an ASP file running on said Web server passes said data to said decision server.

14. The apparatus of Claim 9, further comprising:

means for said code generator server generating an XML schema for providing to a client system for collecting said input data ; and

means for said code generator server generating an XML parser/builder for reading data conforming to said XML schema.

15. The apparatus of Claim 14, further comprising:

means for providing a copy of said XML schema to said Web server for using in any of error handling, data validation, and data verification.

16. The apparatus of Claim 9, further comprising:

means for said code generator server generating a Web page for installing on said Web server to facilitate communication in ASP mode between a client system and said decision server.

17. A method for assembling and delivering a decision engine in ASP mode, said method comprising:

defining input and output structures in XML and/or CGI format;

importing analytical models and/or strategies;

adding rules, modifying decision actions, and general tweaking of said engine;

testing said engine;

fueling said engine with data from a variety of sources; and

5        said engine delivering decisions.

18.    A method for an end user to develop rules, models, and/or strategies, for generating real time decisions in ASP mode, said method comprising:

using predictive and/or descriptive analytics for outputting a models file

10    of resulting rules by taking historical data as input;

providing a designer component, said designer component providing means for designing rules, models, and strategies by using a project design;

storing said project design in a projects repository for future reference;

generating a runtime version of said project design for testing, said

15    testing thereby validating and verifying said rules;

stress testing said rules, models, and/or strategies by inputting a significantly large number of transactions into a monitor and Web server;

said Web server generating a bulk test report representing results of said stress testing;

20        modifying said rules, models, and strategies, if necessary as a result of said stress testing; and

generating production code for executing in production mode.

19.    The method of Claim 18, wherein said predictive and/or descriptive  
25    analytics is either proprietary.

20. The method of Claim 18, further comprising:  
providing a model editor component for automatically converting said  
models file into an XML version of said rules; and  
importing said converted XML data into said designer component.

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21. The method of Claim 18, said designer component further comprising  
providing designing software having graphical user interfaces for  
generating data, variables, rules, models, strategies, trees, and actions  
required in said project design.

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22. The method of Claim 18, further comprising:  
providing a test service whereby said rules are tested in runtime mode,  
said test service comprising a wrapper for a control panel and for an Excel  
testing program.

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23. The method of Claim 18, further comprising:  
said stress testing tracking statistics on specific rules, models, and/or  
strategies by counting the number of times predetermined rules, models,  
and/or strategies are used during said stress testing.

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24. The method of Claim 23, further comprising:  
storing said tracked statistics in a statistics repository.

25. The method of Claim 18, wherein said production code is in C.

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26. An apparatus for an end user to develop rules, models, and/or strategies for generating real time decisions in ASP mode, said apparatus comprising:

predictive and/or descriptive analytics for outputting a models file of

5 resulting rules by taking historical data as input;

a designer component, said designer component providing means for designing rules, models, and strategies by using a project design;

a projects repository for storing said project design for future reference;

a generated runtime version of said project design for testing, thereby

10 to validate and verify said rules;

means for stress testing said rules, models, and/or strategies by inputting a significantly large number of transactions into a monitor and Web server;

a bulk test report generated on said Web server, said bulk test report

15 representing results of said stress testing;

means for modifying said rules, models, and strategies, if necessary as a result of said stress testing; and

production code for executing in production mode.

20 27. The apparatus of Claim 26, wherein said predictive and/or descriptive analytics is either proprietary.

28. The apparatus of Claim 26, further comprising:

a model editor component for automatically converting said models file

25 into an XML version of said rules; and

means for importing said converted XML data into said designer component.

29. The apparatus of Claim 26, said designer component further comprising

designing software having graphical user interfaces for generating data, variables, rules, models, strategies, trees, and actions required in said project design.

30. The apparatus of Claim 26, further comprising:

a test service for testing said rules in runtime mode, said test service comprising a wrapper for a control panel and for an Excel testing program.

31. The apparatus of Claim 26, further comprising:

means for said stress testing to track statistics on specific rules, models, and/or strategies by counting the number of times predetermined rules, models, and/or strategies are used during said stress testing.

32. The apparatus of Claim 23, further comprising:

a statistics repository for storing said tracked statistics.

33. The apparatus of Claim 18, wherein said production code is C format.

34. An apparatus in an ASP environment for automating real time decisions, said apparatus comprising:

a data center accessible over the Internet;



an all-purpose decision engine resident on said data center; and  
means for configuring, testing, and deploying said all-purpose decision  
engine;

wherein said configured decision engine is embeddable in a business  
5 software application.

35. The apparatus of Claim 34, further comprising:  
at least one model.

10 36. The apparatus of Claim 34, further comprising:  
systems integration and strategy consulting.

37. The apparatus of Claim 34, further comprising domain expert  
contributions from at least one domain expert, said at least one domain expert  
15 comprising any of, but not limited to:  
a client;  
a partner; and  
a consultant.

20 38. The apparatus of Claim 35, wherein said at least one model is any  
combination of, but not limited to:  
expert;  
judgment;  
pooled;  
25 custom predictive; and  
decision;

wherein said at least one model predicts any combination of, but not limited to risk, revenue, response, attrition, and the like.

39. The apparatus of Claim 34, said means for configuring, testing, and  
5 deploying further comprising adaptability for a variety of end user categories,  
comprising any of, but not limited to:

vertical markets and functional areas within said vertical markets;

horizontal markets and functional areas within said horizontal markets;

operation managers of Fortune 1000 companies; and

10 training consultants and software integrators.

40. The apparatus of Claim 34, said means for configuring, testing, and  
deploying further comprising:

means for building a special purpose decision application having a user  
15 interface customized to a particular purpose.

41. The apparatus of Claim 40, wherein said particular purpose is  
business.

20 42. The apparatus of Claim 34, further comprising:

open and industry standard software architecture on said data center  
for software compatibility.

43. The apparatus of Claim 42, wherein said open and industry standard  
25 software architecture follows Extensible Markup Language (XML) standards  
for Internet communications.

44. The apparatus of Claim 34, further comprising:  
an additional layer of coordinating software for linking said decision engine to netsourced and/or external data.

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45. The apparatus of Claim 34, further comprising:  
a transaction log of said automated real time decisions, said log accessible by a client.

10 46. The apparatus of Claim 34, further comprising:  
means for integrating said decision engine into an enterprise workflow;  
wherein said decisions comprise any combination of, but are not limited to:

15 scores;  
reason codes;  
actions; and  
other calculated results.

20 47. The apparatus of Claim 34, further comprising:  
a decision process template for facilitating easy assembly of a basic design of said decision engine.

48. The apparatus of Claim 34, further comprising:  
means for champion/challenger testing in a strategy design cycle.

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49. The apparatus of Claim 34, further comprising:

automatic means for importing predefined models and/or strategies by an end user into said configured decision engine.

50. The apparatus of Claim 34, further comprising:

5 a visual designer component for facilitating said configuring said decision engine;

a Web-based reporting facility component for design time configuration and run-time testing results; and

10 a run-time server for run-time execution of said configured decision engine wherein said server is linked to from a requesting system via a Web-server.

51. The apparatus of Claim 50, further comprising:

15 means for using said visual designer component to create a project resident at said data center;

means for said data center generating associated code for said project and install said associated code on said run-time server;

20 means for said data center generating an XML schema corresponding to said project to define input and output structures for said business application; and

means for said run-time server accepting transactions from said business application, said transactions conforming to said XML schema, said run-time server processing said transactions using said project to generate said real time decisions, and said run-time server returning said real time  
25 decisions to said business application via said Web-server.

52. The apparatus of Claim 34, further comprising:  
user defined rules to be executed by said decision engine.

53. The apparatus of Claim 51, said project having a project design and  
5 associated design parts, said design parts comprising any of, but not limited  
to:

input and output data structures;

characteristic generations;

models comprising characteristics and attributes to produce a  
10 predictive score and a score reason at runtime for a given transaction, and  
user defined functions;

a reason codes corresponding to said score reason;

business rules and exclusions;

decision strategies; and

15 recommended decisions, scores, and actions;

wherein said project design carried out by a workflow functional  
component of said designer component by working with said project design  
parts;

wherein said workflow functional component comprises:

20 expression sequences;

segmentation trees;

workflow lists;

means for placing said sequences, trees, and lists in a desired  
order, said order comprising, but not limited to hierarchical design;

25 a root workflow list providing a starting point for processing said  
workflow at runtime and means for defining said workflow of said project; and

wherein said reason codes are determined during calculation of said scores;

54. The apparatus of Claim 53, wherein said root workflow list represents a main thread of execution for said project at runtime, wherein any of said workflow lists is used as a result list at an exit point of a segmentation tree of said segmentation trees, and wherein end result nodes in said segmentation tree points to said workflow list.

55. The apparatus of Claim 54, wherein more than one node in said segmentation tree and/or more than one segmentation tree in said project points to a same workflow list of said workflow lists.

56. The apparatus of Claim 53, further comprising means for validating said models, wherein said means for validating comprises, but is not limited to:

using a model editor for validating and verifying content of said models;

and

marking said project for production or testing.

57. A method in an ASP environment for automating real time decisions, said method comprising:

providing a data center accessible over the Internet;

providing an all-purpose decision engine resident on said data center;

and

configuring, testing, and deploying said all-purpose decision engine;

wherein said configured decision engine is embeddable in a business software application.

58. The method of Claim 57, further comprising:

5 providing at least one model.

59. The method of Claim 57, further comprising:

providing systems integration and strategy consulting.

10 60. The method of Claim 57, further comprising providing domain expert contributions from at least one domain expert, said at least one domain expert comprising any of, but not limited to:

a client;

a partner; and

15 a consultant.

61. The method of Claim 58, wherein said at least one model is any combination of, but not limited to:

expert;

20 judgment;

pooled;

custom predictive; and

decision;

25 wherein said at least one model predicts any combination of, but not limited to risk, revenue, response, attrition, and the like.

62. The method of Claim 57, said configuring, testing, and deploying further comprising adaptability for a variety of end user categories, comprising any of, but not limited to:

vertical markets and functional areas within said vertical markets;

5 horizontal markets and functional areas within said horizontal markets;

operation managers of Fortune 1000 companies; and

training consultants and software integrators.

63. The method of Claim 57, said configuring, testing, and deploying further comprising:

building a special purpose decision application having a user interface customized to a particular purpose.

64. The method of Claim 63, wherein said particular purpose is business.

65. The method of Claim 57, further comprising:

providing open and industry standard software architecture on said data center for software compatibility.

66. The method of Claim 65, wherein said open and industry standard software architecture follows Extensible Markup Language (XML) standards for Internet communications.

67. The method of Claim 57, further comprising:

providing an additional layer of coordinating software for linking said decision engine to netsourced and/or external data.



68. The method of Claim 57, further comprising:  
providing a transaction log of said automated real time decisions, said  
log accessible by a client.

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69. The method of Claim 57, further comprising:  
integrating said decision engine into an enterprise workflow;  
wherein said decisions comprise any combination of, but are not limited  
to:

10 scores;  
reason codes;  
actions; and  
other calculated results.

15 70. The method of Claim 57, further comprising:  
providing a decision process template for facilitating easy assembly of  
a basic design of said decision engine.

20 71. The method of Claim 57, further comprising:  
champion/challenger testing in a strategy design cycle.

72. The method of Claim 57, further comprising:  
automatic importing predefined models and/or strategies by an end  
user into said configured decision engine.

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73. The method of Claim 57, further comprising:

providing a visual designer component for facilitating said configuring said decision engine;

providing a Web-based reporting facility component for design time configuration and run-time testing results; and

- 5            providing a run-time server for run-time execution of said configured decision engine wherein said server is linked to from a requesting system via a Web-server.

74.    The method of Claim 73, further comprising:

- 10           using said visual designer component to create a project resident at said data center;

             said data center generating associated code for said project and install said associated code on said run-time server;

- said data center generating an XML schema corresponding to said project to define input and output structures for said business application; and
- 15           said run-time server accepting transactions from said business

- application, said transactions conforming to said XML schema, said run-time server processing said transactions using said project to generate said real time decisions, and said run-time server returning said real time decisions to
- 20           said business application via said Web-server.

75.    The method of Claim 57, further comprising:

             providing user defined rules to be executed by said decision engine.

76. The method of Claim 74, said project having a project design and associated design parts, said design parts comprising any of, but not limited to:

input and output data structures;

5 characteristic generations;

models comprising characteristics and attributes to produce a predictive score and a score reason at runtime for a given transaction, and user defined functions;

a reason codes corresponding to said score reason;

10 business rules and exclusions;

decision strategies; and

recommended decisions, scores, and actions;

wherein said project design carried out by a workflow functional component of said designer component by working with said project design parts;

wherein said workflow functional component comprises:

expression sequences;

segmentation trees;

workflow lists;

20 means for placing said sequences, trees, and lists in a desired order, said order comprising, but not limited to hierarchical design;

a root workflow list providing a starting point for processing said workflow at runtime and means for defining said workflow of said project; and

25 wherein said reason codes are determined during calculation of said scores;

77. The method of Claim 76, wherein said root workflow list represents a main thread of execution for said project at runtime, wherein any of said workflow lists is used as a result list at an exit point of a segmentation tree of said segmentation trees, and wherein end result nodes in said segmentation tree points to said workflow list.

78. The method of Claim 77, wherein more than one node in said segmentation tree and/or more than one segmentation tree in said project points to a same workflow list of said workflow lists.

79. The method of Claim 76, further comprising validating said models, wherein said validating comprises, but is not limited to:

using a model editor for validating and verifying content of said models;

and

marking said project for production or testing.